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AUTHOR Cheong, Lau Kam
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ABSTRACT

Generally concerned with how the schools can better educate the adolescent for adulthood, this paper briefly discusses the adolescent's need for work as a means of attaining adulthood, some promises and threats of technology, and effects of technological advances on society. Particular attention is given to four main effects having direct implications for the education of adolescents: accelerated growth of knowledge, rapid pace of change, displacement of job opportunities, and deterioration of human relations. Subsequent discussion points out inadequacies of existing school systems and explores ways of improving instruction so that the adolescent student acquires basic survival skills, such as learning how to learn, to adapt to change, to be versatile in different areas of vocational skills, and to develop a favorable disposition toward social responsiblity. It is concluded that instruction providing such basic survival skills to adolescents will better prepare them for conditions they will face when they leave school. (RH)

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Main Theme

Adolescent and Technological Changes

CHAIRPERSON — *Associate Professor Leong Yin Ching*

RAPPORTEUR — *Mr. Lim Meng Mui*

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Educating the Adolescent for Technological Changes: Some Implications for Teaching

Lau Kam Cheong

INTRODUCTION

At any point in time, every society has a substantial proportion of its members who are in that seemingly troublesome and difficult period of human development which we call adolescence. As working adults, we have all gone through this period of life which, according to psychologists, lies between the end of childhood and the beginning of adulthood. The individuals who are undergoing this transition period of biological and social change are referred to as adolescents. For the fortunate ones who are endowed with ability or who have received proper parental care and guidance, this difficult period may be a relatively short one of about four to five years before they emerge as adults to take up a job or profession. Those with less parental care may have to fumble around for about ten to twenty years before they can adjust to the demands and requirements of the adult world. For the unfortunate majority who are neglected and confused, the problems they face as adults will seem endless. In trying to find quick and easy solutions to their problems, many will in turn create serious problems for society. The schools which they had attended have somehow failed to equip them with the essential skills to become useful members of society.

The attainment of adulthood with its responsibilities may come about simply and easily to some youth in our society but judging from the large number of unskilled school leavers who become juvenile delinquents, it is obvious that growing up to be a useful and responsible adult in society is not an easy process.

STRUGGLE FOR ADULTHOOD

The struggle for adulthood for most people is a struggle for vocational and economic independence. It is a struggle for work. Work is a natural activity of man and his life will be inconceivable without it. In work, he satisfies his sense of accomplishment, expresses himself and fulfills his aspiration. Without meaningful work, man exposes himself to crime and evil. If the adolescent is unable to secure a job when he leaves school, it is very likely that his adult life will be one of misery.

In the job markets of modern society, vocational skills and work conditions are changing very rapidly as new technologies are introduced to enhance efficiency and productivity. The adolescent will not be able to attain vocational and economic independence when he reaches adulthood unless he is receptive and is prepared to learn how to handle new techniques, procedures, tools and machines which he has never heard of or seen before. Unesco has published numerous reports and articles highlighting the plight of the hundres of thousands of young men and women in our large cities who have either dropped out of high school or have completed it without learning any saleable skills. Without a definite skill of some kind, the adolescent leaving school is very unlikely to obtain employment to support himself. To survive, he must continue to rely on his parents for support. If he is fortunate, he may be able to find some part-time or temporary work but this will not enable him to earn enough to maintain himself, let alone a family. If he is unable to seek support from his family or obtain relief from even some form of unstable employment, he will likely turn to crime. Crime is rampant partly because many young adults are unable to achieve vocational and economic independence.

The problems confronting many young adults will become more serious and complicated as new advances are being achieved through science and technology. Technological developments will bring about more efficient forms of automation and computerisation. These advances will affect the structure and composition of employment. While job opportunities for certain occupational and technical skills related to the new technological advances will increase, many existing jobs will become redundant. There may also be a relocation of employment opportunities. For those who are untrained or who are unable to learn and accommodate the new demands and requirements, the consequence they have to face can be pathetic as technological change will have the greatest negative impact on those young adults who are unskilled or semi-skilled. Technological innovations have created new work-styles which demand workers to acquire new skills. Unless the adolescent is receptive to change and is prepared to learn new skills, he will end up a loser.

TECHNOLOGICAL PROMISES AND THREATS

If society is to progress, it is unwise to curb the advances of technology. Some countries had, in the past, attempted to retard the advances of technology so that more jobs might be available for the unskilled and semi-skilled. As a consequence, these countries were unable to progress technologically and their economy suffered. The people, as a whole, had to endure hardships and a declining standard of living because there were serious shortages in the various sectors of the economy. If we examine the history of man, we will, in fact, realise that technology is indispensable to man's survival. Man, being a curious animal, is always learning about the world and changing it through science and technology to suit himself. Man, as we know him today, would not have survived and evolved to what he is today without tools and machines, the discovery and exploitation of materials such as stone, wood, iron and others, fuel and energy, and mechanisation, automation and computerisation. Technology, viewed as the application of scientific knowledge to serve man, has contributed to the growth and development in practically every aspect of man's advancement.

The literature on technological change and its effects is both exciting and frightening. On the exciting side, the literature describes the capabilities of technological advances as being unlimited and hold infinite promise for mankind. Technology has been dubbed as the most potent agent for progress and advancement as it has given man machines to free him from having to behave like a machine. It created an upheaval about two centuries ago during the period referred to as the industrial revolution. The industrial revolution took man from the field and put him into the factory. It brought about mass production and thus made available items of commodity that were considered luxurious to the common man. The creation of machine emancipated man from hard labour and created a completely new environment for mankind. The advancement of man through science and technology since the industrial revolution has been impressive as the benefits derived from achievements in the fields of agriculture, communications, engineering, medicine and so forth are enormous. More efficient transport systems, reduction of hunger, alleviation of diseases and prolongation of life are but only some examples of the many benefits gained.

With the advent of micro-electronics today, a tremendous portal is swinging open. The technology of micro-electronics has brought us the modern and sophisticated computer, automated robot and communication satellite. These new technologies are influencing the way we handle information and other machines so that we can use them to whatever ends we want. With this advancement, man has reasons to be excited because he is beginning to unlock other doors leading to an even more fascinating world.

The benefits man has derived from technology are great but at the same time, he must also recognise the fact that technological progress has also many adverse side-effects. Many sociologists are quick to point out the frightening side of technological advancement. Although the innovations of technology have improved the quality and tempo of life, they have also brought all kinds of new problems to the fore. The incredible toll of human life on our highways, for example, is the result of the invention of the motor car and mass production has resulted in the alienation of man from himself on the assembly line. The abuse of technology by man has brought about the awesome threat of the destruction of man by nuclear weapons and the global pollution of the land, water and atmosphere of the earth. This is the frightening part of what is before us. The loss of jobs, the inability to seek employment, the assignment of self-pity by the individual to himself, the sweeping away of self-respect and the need to live on a minimum budget or the need to scrounge for food and shelter – all these intensify the fear.

Sociologists have also associated the cause of the many social ills of today's youth with technology. Major social problems such as rapid job turnover, alcoholism, drug addiction, excessive smoking, sense of insecurity, nervous breakdown, lack of interest, apathy, aversion and many seemingly insurmountable barriers to learning have been attributed directly or indirectly to the inability of adolescents to cope with the rapidity of technological change. With all these frightening problems threatening society today, it is not difficult to understand why so many scholars are blaming technology for having made our modern youth worse off and more difficult to handle than their counterparts in the previous generations.

EFFECTS OF TECHNOLOGICAL ADVANCES

To guide and direct our thinking towards how the school can better educate the adolescent for adulthood, it is crucial that we understand the pervasive effects of technological advances. Of the many ways science and technology have influenced society, there are four main effects that have direct implications on the education of adolescents. These are the accelerated growth of knowledge, the rapidity of change, the displacement of job opportunities, and the deterioration of human relations.

Accelerated Growth of Knowledge

Vast amounts of scientific and technical knowledge are being published every year. The Library of Congress has estimated that there are approximately 40,000 scientific and technical journals being published throughout the world today. Estimating on an average of 50 articles per journal per year, we are faced with some 2,000,000 scientific articles published throughout the world each year. At this rate of growth, the total amount

of recorded knowledge will double in about every seven to ten years. Man's knowledge in science and technology is advancing so rapidly today that many new technologies confront him before he has fully understood past achievements. Keeping abreast of developments will require effective learning skills to retrieve information rapidly and the ability to discriminate between its relevance or irrelevance. No amount of teaching will be sufficiently adequate to enable a person to master everything he needs to know about a particular subject.

Rapidity of Change

The process of change in society is continual. Technological change is therefore not a new phenomenon but what is new is the sweeping pace at which this change is taking place. It has been said that the everyday life of the average man has changed more in the last 65 years than in the 2,000 years before. This rapid change is connected with the growth of modern technology. Being an incredibly powerful revolutionary force, technology has influenced profoundly new developments in production, transportation, occupational trends, leisure, centralisation, specialisation, customs and beliefs, moral and aesthetic sensitivities and even national policies. The changes that result from these new developments are reshaping our lifestyle and life-orientation at incredible speed today. For example, a man 50 years old today, born in an age when horses and bullock carts were still in fashion, may live to see the beginning of interplanetary travel and the emergence of 'thinking' computers. He has watched the development of motor cars, aeroplanes and remote control vehicles and the growth of radio, television and communication satellites. Furthermore, he has seen electricity replacing coal and steel, and now he sees atomic and solar energy beginning to replace fossil energy itself. The rate of change is very great indeed. Many office machines, for example, manufactured only two or three years ago, are now being replaced by smaller and more efficient ones. Changes come rapidly and each day brings new discoveries.

There is no question whatsoever that technology will continue to change our society. It is not difficult to envisage the adolescent as a productive citizen in the year 2,000 being employed only on a four-day week. He will be able to travel to the furthest part of the world in a few hours at minimum cost. His inexpensive clothing, made of synthetic fibres, will be disposable. Away from home, he will communicate with his family and friends by a wrist-watch transmitter and receiver. At his desk or from the public phone booth, his telephone call will be visual as well as aural. The library where he seeks knowledge will be a central information retrieval centre. He will get the reading materials he wants at home through his video display terminal. If he is tired of reading, there is the wall-size television receiver to entertain him not only in colour but also in three dimensions. His world will use fuel-cells as a form of portable electric power. Solar energy will be available. Nuclear power will be safe to use for a wide

variety of purposes including space travel. The incredible laser beam will have opened up new fields of knowledge and will be widely applied. Communication satellites will operate for 24 hours a day and no part of the world will ever be isolated again. The oceans will be farmed and their bottoms mined. Micro-organisms will be used widely in industry. The DNA of genes will have begun to yield its secrets for the production of high-yielding farm animals and crops.

As we cannot actually see what is around the corner, this futuristic scenario may seem to be a fantasy. However, the signs of its beginning are all around us. Although not available for sale presently, items such as the wall-size colour three dimension television receiver and the videophone are already a reality. Every breakthrough in science generates still another series of discoveries and as each of these is put into practical use, society is required to adjust itself accordingly. To cope with the rapidity of change, the adolescent of today must be educationally prepared to change their way of looking at the world. The forces of technological change is at the heart of his life. He must learn to understand and live with these forces if he is to survive. Adaptation for survival in this rapidly changing world depends on how the school has developed his rational thinking and reasoning power to conform to the many changes that will confront him.

Displacement of Job Opportunity

There was a time when a young person entering the labour force without a skill and with little education could have a fair chance of achieving an adequate economic life. Today, the odds are against him. Occupationally unskilled jobs are declining in importance because technology has liberated man for more efficient use of the human mind and to free him from the bonds of mindless toil. Mechanical means will, more and more, replace human muscles. There will obviously be fewer and fewer jobs for the unskilled and the semi-skilled. Technological change is therefore highly threatening to the job security of the uneducated and the unskilled. By reducing the need for unskilled workers, technology will change the basic pattern of employment by eliminating jobs in some areas and creating new ones in others. For example, thousands of blacksmiths and carriage repairmen were replaced by motor mechanics when motor vehicles became the dominant mode of transport. Today, workers in the service industries outnumber those in the production industries, and white-collar workers are far more numerous than blue-collar workers. Demand is definitely expanding in the professional, technical and service occupations. In the future, it will not be enough even to possess a skill if the skill is not widely needed. Schools may have to change their role to become centres for continuing education and training. We need continuing education and training to prepare our youth not only to operate the instruments of technology but also to prepare them for the changing occupational patterns which technology has thrust upon us. In order to

find useful work in life, young adults have to be retrained to upgrade their skills even though they have completed their formal school education. If they are left alone, their skills will soon become obsolete and they will be considered redundant. It is quite obvious that the man with little skill will have difficulty in finding a job to become economically independent.

Deterioration of Human Relations

The rapid pace of technological change has also created conditions that tend to bring about a sense of insecurity in individuals. Specialisation and division of labour, for example, have made people more interdependent but because uncertainty and disorder in society affect the balance of interdependence, the sense of personal insecurity becomes accentuated. Despite mutual needs, the tempo of life is one of every man for himself. As job activities become more competitive, individuals will also become more estranged from one another. Sociologists have observed that in major urban areas, lifelong neighbourhood relationship is already a thing of the past and voluntary service to others and to the community is becoming more and more scarce. If this trend continues, the sense of belonging to a particular community will not be experienced by many people and dealings between individuals will be formal and impersonal.

Society today is beset with all kinds of illnesses involving a breakdown of human relations. The daily press is saturated with reports about delinquency, crime, cultural intolerance and moral decay, and communal and international strife. When the adolescent enters the world of adults, he must have the emotional and mental maturity to strive for a better and more stable society. It is therefore not enough for the school to prepare him to acquire new knowledge and skills to cope with change but also help him develop a strong sense of social responsibility and civic-mindedness so that he will be able to discharge his obligations as a member of society.

In view of the great consequences technology has on society, it is crucial that the adolescent should be educated in terms of his future needs. The curriculum of secondary schools has to be redesigned to help the adolescent acquire necessary skills and knowledge to ensure gainful employment and improvement of the quality of his adult life. In order to help him keep pace with the ever expanding volume of knowledge, his school must help him learn to sustain learning on his own. To cope with the rapid developments in science and technology, he needs to be able to adapt and conform to change. In addition, his school must foster the development of a positive attitude towards work and social responsibility to help him meet the socio-economic demands of his society. Our schools have produced many educated misfits for society. This is because we, as educators, are unable to design future-oriented school curricula. We have not been able to direct our effort to prepare them as future adults for self-learning, change, work and living. Consequently, when they leave school to

meet the challenges of their adult world, many are unable to lead a stable life.

EDUCATIONAL INADEQUACIES

Probably, nowhere else does technology present greater problems than in the education and preparation of the adolescent for adulthood. Although technology has contributed much through television and other forms of mass media to make the present generation of modern youth more knowledgeable than the youth of the previous generations, the numerous changes it has brought about in nearly every area of human endeavour will generate an environment that is so competitive and complex that even those who are educated will find their level of competence seriously challenged in their adult years.

If we examine the technology changes that are taking place today vis-a-vis the existing curricula of secondary schools, it is not difficult to understand why relatively few people are sufficiently well equipped to face the conditions and vicissitudes of the present day world. The demands of modernisation and technological growth have brought about the spread of automation and the use of industrial robots, and yet much of what we teach the adolescent in school is irrelevant to this development. If we were to conduct a survey and question unemployed young adults on the relationship between their school education and their present jobless situation, it would not be surprising to find that they could not relate school to job in a meaningful way. This is because the schools they attended had not taught them anything on how they might be living in the future. When they left school, they had not the slightest idea of what they were going to be or where they would be going. To some degree, it would be true that for this group of young adults, our schools have not equipped them with adequate learning, vocational and social skills, and a sense of the future.

Under the existing education systems in most countries of the world, areas of subject matter are identified and rigorously prescribed for the teacher. Pedagogical practices in terms of content organisation, presentation and evaluation are designed to cover and inculcate a specific body of the subject matter prescribed. Vertically, each grade level specifies the content to be taught by the teacher. Horizontally within each grade, instruction is departmentalised on the basis of subjects such as history, geography, science, mathematics and so forth. Teaching is mainly concerned with imparting knowledge and mastering of the subject matter by students. Learning skills are seldom taken into consideration. It is assumed that students naturally know how to learn the prescribed materials covered by the teacher. Techniques of gathering, analysing, synthesising, organising, remembering and using information, for example, are somewhat neglected.

The rapid growth of knowledge, commonly referred to as the know-

ledge explosion, is probably the most important single factor in forcing curricular reforms in today's schools. In almost every exercise of curriculum revision, we tend to add more content areas than we remove. Knowledge, however, is not static and many areas of knowledge become obsolete within a decade or so. For a given body of knowledge, we can expect radical reorganisation not once in the coming century but several times at intervals of ten to twenty years. As a result of this information revolution, so much has to be learnt in so many areas that it is not realistic for the adolescent to learn even the summaries of existing knowledge. The sheer volume of information in a given subject area defeats any effort to teach it as a body of facts. Instruction, in terms of knowledge transmission, should not be over concerned with the amount of knowledge to be imparted as with the lack of understanding of what is transmitted.

In view of the inadequacies of existing school systems, it is therefore pertinent to ask:

> What kind of general education must the adolescent acquire for successful living?
> What training should he receive in order to make him pliable, adaptable and trainable to meet the fluctuating job demands in society?

Education, as a means of preparing the adolescent for change, requires a very different pedagogical emphasis. Instructional activities should centre more on learning and understanding and less on the quantity of information taught. Instead of focusing on knowledge *per se*, pedagogical practices should be reoriented to focus on ways of knowing, thinking and dealing with concepts, phenomena and events. The teacher should not view the learning of subject matter by students as an end in itself. While it is true that instruction cannot be devoid of content, the teacher should utilise content as a means for the adolescent to learn how to learn, to adapt to change, to be versatile in different areas of vocational skills and to develop a favourable disposition for social responsibility.

LEARNING TO LEARN

Without the drive and the ability to sustain self-learning, a person cannot seek the knowledge he needs to progress and contribute to the development of society. An important educational task of teachers in secondary schools is to be able to motivate the adolescent to sharpen his learning skills. The following pedagogical principles, when skilfully applied, would help a teacher to accomplish this task.

Provide Only Basic Concepts and Broad Principles

Since the main intention of the teacher is to help his student acquire learning skills, it is not necessary for him to cramp his lesson with factual content. In fact, a lesson that is overloaded with specific facts and information will only confuse rather than help learning. If the basic concepts

and principles for a given topic are well structured and explained, understanding will be facilitated as the student can better perceive the forest for the trees. Rather than giving the student a mass of detailed content, it is more important to guide him to look up and acquire the relevant facts and information for himself. Emphasis should be placed on the analysis, synthesis and organisation of information for clarity of understanding.

Motivate to Arouse Interest and Involvement

If self-learning is to be sustained on the part of the adolescent student, he needs to be stimulated. Motivational techniques such as reinforcement, novelty, curiosity, arousal, excitement, recognition and reward are required to stimulate and arouse interest so that he is prepared to get involved and learn what is relevant. Admittedly, it is not easy to motivate people to learn. However, psychologists have advised that the adolescent in school will be motivated to learn more readily if he

(1) knows what the teacher has to offer and the context under which instruction is carried out;
(2) sees the value and significance in what he is asked to learn;
(3) perceives the new learning tasks pursued as realistic and attainable within his ability;
(4) is exposed to novel ideas and materials that are related to his existing knowledge and interests; and
(5) perceives the instructional environment as warm, friendly, encouraging and rewarding.

Encourage the Trying Out of New Ideas

Learning will become more challenging and meaningful to the adolescent student if he is provided with opportunities to find things out for himself. The development of a questioning and searching attitude on the part of the adolescent is conducive to his learning to learn. The process of active searching and inquiring can be facilitated by the teacher who encourages him to raise questions and guides him to find his own answers.

Provide for Independent Study

In learning to learn, one has to be determined, responsible and self-indulgent. These qualities need to be developed in the adolescent student. No teacher, however efficient, can study on behalf of his student. However, what he can do is to advise his student and provide him with the necessary skills to carry out independent study on his own. It is therefore important that the adolescent student should acquire skills pertaining to the utilisation of library and other resource materials since the bulk of knowledge is stored in the form of books. Besides study skills, the teacher also has to help his student cultivate self-study habits. This can be achieved by providing time for independent study during school hours. By

scheduling time for independent study, the teacher is creating a learning situation in the school which allows for the development of learning competencies through direct personal involvement and interactions with others when needed. In an ideal independent study situation, the student is free from constant supervision. He reads, writes, contemplates, reflects, listens, experiments, examines, analyses, investigates, questions, discovers and discusses.

Encourage Self-Evaluation

For continued improvement in learning, it is essential that the adolescent student should be able to recognise and correct his own errors and identify the progress he has made. To help the student evaluate his own learning, he has to be shown how to check and verify information. If self-learning is to be sustained, the student should not be totally dependent on his teacher for the feedback and reinforcement of correct responses. Dictionaries, atlases, maps, encyclopaedias and other simple reference materials should be made available to him for checking factual information. His ability to locate and check sources of facts will enable him to monitor his own learning progress and to decide for himself which facts or concepts are important.

ADAPTING TO CHANGE

In educating the adolescent student to be adaptable to technological change, the central task is to teach him to accept scientific thoughts and to think functionally and rationally. Adaptability requires people to utilise their knowledge to understand directions and to accomplish a purpose, that is, to solve problems or to devise new ways to cope with them. As technology becomes more complex and specialised, the pace of change will quicken and the problems of society will be more demanding. Consequently, the need for functional and clear thinking in man will become even more crucial. The adolescent's thinking ability has to be developed so that his thought processes will function systematically and rationally to enable him to distinguish critically the extraneous from the pertinent, the misleading from the indicative, and the distortion from the truth. In order to develop his thinking ability, the adolescent needs to be trained in the skills of thinking and problem-solving. He must be trained to think not only on the 'how' but also the 'why' of doing things. He should be trained not only to apply knowledge but also to innovate and create.

Thinking is necessary for solving problems, be it creative, divergent, convergent, critical or reflective. Frequent practice in problem-identification and problem-solving is essential if thinking is to be improved. The task of instruction therefore requires the teacher to emphasise modes of decision-making and problem-solving such as the identification of problems, gathering of relevant information required, formulation and testing

of tentative conclusions, and the evaluation and selection of the best alternative. Thus, the following pedagogical activities may be considered for facilitating the teaching of problem-solving skills:

(1) formulate solvable problems within the capability of the student;
(2) describe to the student the terminal performance which constitutes the solution of the problem so that he can work out the specific steps involved for himself;
(3) assess the student's entry behaviour for the concepts and principles he will require in the solution of the problem;
(4) assist the student in stating and delimiting the problem;
(5) invoke the recall of relevant concepts and principles;
(6) guide and assist the students in gathering and processing information;
(7) encourage the stating and testing of hypotheses; and
(8) assess the adequacy of student learning in solving the given problem.

Creativity and its development are also important if the adolescent is to be adequately prepared for adaptation to change. Every adolescent has some creativity in some areas. A teacher should identify the creative talent of his adolescent student and give it special attention. Creativity is a form of problem-solving. In the classroom context, it may be viewed as higher order problem-solving involving imaginative thinking. It therefore requires additional instructional support besides those suggested for functional problem-solving and decision-making situations. To foster creativity is to help the adolescent think more imaginatively, and the teacher may accomplish this by encouraging imaginative and creative expressions in many forms of media and a divergent approach to problem-solving. He should provide time for creative expressions for the development and application of problem-solving skills, keep a watchful eye on the creative achievements of the student and provide rewards to reinforce them accordingly.

CULTIVATING WORK RESPONSIBILITY

Due to the heavy emphasis placed on the teaching of academic content, many schools have neglected the education of the adolescent for work. In an age where technology is changing rapidly occupational trends, there is an urgent need for the adolescent to be exposed to a variety of job situations so that he will be able to cultivate a responsible attitude towards work. Such work exposure will also enhance his versatility to learn and relearn new jobs so as to become vocationally competent.

To prepare the adolescent for the adult world of work, the school can introduce activities that will provide actual work experience on a scaled-down basis during the vacation. Short attachments of about three weeks to a month to the various local factories, workshops, farms and other forms of services and occupations during school vacations are desirable

for character building and the inculcation of work responsibility. Character-building qualities for hard work cannot be developed overnight. Gradual work exposure is essential for the adolescent to identify his vocational interest and adjust himself to fit his new station of adult life when he leaves school to join the working community.

The adolescent who cannot cope with academic learning in school is generally anxious to work. Being academically less inclined, school work to him is meaningless and irrelevant unless we can meet his desire to work while still in school. By simply keeping him in school to acquire abstract book knowledge will only frustrate him and intensify his dislike for school. For him, work experience and work-related education, programmes on modern industrial arts, practical engineering, agriculture and health services should be made available to students in secondary schools. These programmes would be based on the needs of modern day living with lessons in selecting, buying and using consumer goods. The curricula involved should expose students to the use of tools, instruments and machines, and orientate them to a world of mass production and industrial operation, systems organisation, innovation and automation. A school with such training programmes would be in a better position to educate the adolescent as a future worker, consumer, parent and taxpayer. Although some of the skills he learns today will become obsolete in his adult working life, such work-oriented programmes will make him more trainable. He will be better prepared for retraining, relearning and job upgrading. His capacity to adapt to changing occupational patterns will therefore be increased. In view of the declining employment prospects for labourers, farmhands, handymen and other relatively unskilled workers at the bottom of the job ladder, it is imperative that programmes of work-oriented education should be available to the adolescent. If he is to appreciate the importance, value and satisfaction of holding a job for self-support, the school must provide the practical training and work experience for him to acquire saleable skills.

INCULCATING SOCIAL RESPONSIBILITY

To counter the effect of deteriorating human relations, the education of adolescents should also focus attention on the inculcation of social responsibility. While time limitation and other curricular constraints may not permit the teaching of human relations and social responsibility as a separate subject, teachers must make use of every opportunity available in whatever instructional situation to help the adolescent improve his self-concept and develop proper social deportment, a sense of impartiality and civic consciousness. Without these attributes, the adolescent will find it difficult to learn to get along and work with people in an adult world where co-operation and teamwork are essential to human progress.

Self-Concept

It is a truism that when a person hates himself, it is likely that he will also dislike other people. If he thinks well of himself, he is more likely to contribute his effort to assist others who, in one way or another, are different from him. There is, thus, a need to encourage the adolescent in school to cultivate a postive self-concept so that he will be better able to associate with others. Teachers who frequently criticise the adolescent for his shortcomings are unlikely to help him cultivate a positive self-concept.

Social Department

Genuine and amiable relationships between people can be more readily established if there is mutual give-and-take as well as respect for each other. Since the problems of winning friends and maintaining friendship are encountered in all stages of adult life, it is crucial that proprieties of social deportment such as courtesy, respect, humility and so forth are instilled in the adolescent while he is still in school. From the standpoint of effective living, tact and the related skills of social deportment are as essential as the fundamental cognitive skills of reading, writing and arithmetic. If the adolescent is to win the trust and respect of others in his adult life, he must know how to conduct himself in the company of others. Teachers must bear in mind that the proprieties of social deportment are caught rather than taught. Hence, it is important that they must, in their daily contact with the adolescent student, serve as models of good social conduct.

Sense of Impartiality

Being fair-minded, impartial and tolerant towards other people, cultural practices and life itself is essential if there is to be peace and harmony in society. Very often, people do not get along with each other because they are unable to differentiate between social ideals and social realities. Many problems between individuals, communities and even nations arise because people adopt a one-sided attitude and become intolerant, prejudiced and biased. It is therefore crucial that the adolescent in school has to be shown, especially from real-life examples, the need to be tolerant, patient, open-minded and impartial. Reminding them of the negative effects of the obverse is equally important. Teachers can help to fulfil this task by being honest, fair and just in their dealings with the adolescent. In teaching controversial issues covered in the various subjects, they must maintain an unbiased and impartial stand. The instructional approach they adopt should not be one of preaching but rather one of appealing to the logical understanding and reasoning ability of the adolescent.

Civic Consciousness

As a result of the rat-race generated by technological advancement, people have tended to become self-centred, less civic-minded, disinterested

in community development activities and apathetic towards the welfare of society. A person who lacks civic consciousness is unlikely to discharge voluntarily his social responsibility for the benefit of society. Teachers can help the adolescent to cultivate a sense of social commitment by encouraging them to participate in civic activities and community matters, and highlighting the benefits which can be derived from such involvement. The instructional approach of the teacher must be one of motivation as social commitment cannot be festered through coercion. The adolescent is more likely to be involved if the activities are conducted in an interesting and practical manner. Field experiences such as a day in court, a visit to the fire station, actual participation in community development projects, and even observation of political rallies can help the teaching and learning of community affairs become more active and meaningful.

Further exploration is obviously needed to determine how teachers can effectively help the adolescent develop a favourable disposition for social responsibility so that it will enable him to relate well to others and to do his best for society. We can begin by making the adolescent feel, during instruction, that he is liked, needed, accepted and has a rightful place in society – it does not matter whether he is clever or stupid, his skin is light or dark, he is handsome or ugly, and goes to the mosque, temple or church, lives in the city or in the rural area and his forefathers were local-born or immigrants. It is others in a world where technology is rapidly threatening to dehumanise people. Due to personal prejudices and biases acquired consciously or unconsciously over the years, it is by no means a simple task for the teacher to accomplish this goal.

CONCLUDING REMARKS

The rush of technological advances has transformed the world of work and society must keep pace accordingly. Whatever moves society is making to help its youth adjust to the future, it is clear that education will play a major role. Traditionally, education has been called upon to transmit knowledge of the past, link the past with the present and create new ideas that will contribute to the future. Presently, since we are living in an age in which the only constant phenomenon appears to be change itself, we need to look critically at whether the education the adolescent receives in school is providing him with the essential survival skills to meet the challenges that will serve his needs in the future. If our schools are unable to educate him for work in a highly technical society, then his future ahead will be bleak as he will not be able to support himself economically. There is no single programme of instruction that can effectively prepare the adolescent for adulthood but if the basic survival skills in terms of learning, adaptation, work and human relations are integrated in the different subjects of the curriculum, he will be better prepared to handle the problems confronting him when he leaves school. To prepare the

adolescent for technological change is to equip him for self-education, to enhance his trainability and increase his capacity for co-operation and teamwork. To accomplish this task, teachers must focus their attention on the pedagogical emphases discussed. Their role as a purveyor of information will be reduced in importance but that of an adviser and councellor will be enhanced. This means that they will have to devote more time to listen to the problems of their adolescent student and to help him seek out conflicting arguments rather than handing out ready-made truths. During instruction, they will have to direct their energy to productive and creative activities such as interaction, discussion and ssimulation to facilitate understanding and application. The challenge facing teachers is therefore one of motivating the student. They will have to devise ways and means to inspire and stimulate the adolescent student to get involved and be accountable for his own learning.

In our preoccupation with providing education, we must not overlook the task of fostering self-education. Improving the quality of education for the adolescent does not necessarily imply providing him with more knowledge in the form of academic content. Conveying information that is already in the textbook is the simplest task of teaching but whether the knowledge imparted has been learnt or not depends largely on the learning skills of the student and the amount of effort he is prepared to put in to be involved. If the adolescent student is motivated and shows how he can increase his own store of knowledge, he is very likely to respond to the challenge. It is therefore important to teach the adolescent in school how to learn to acquire useful knowledge in order to be adaptive to change. We are so accustomed to the idea of 'giving' education that we assume what the student receives in the form of knowledge will automatically be learnt. Thus in giving education, we have all this while, metaphorically speaking, been supplying 'fish' to the adolescent we teach. If this trend continues, he will never perceive the need to fish for himself. As he has not been taught how to fish, he will never be able to become self-reliant. In the words of an ancient Chinese sage, if we give a man a fish, he will only have a meal but if we teach him how to fish, he will be able to feast for life. By educating the adolescent to cultivate the habit of learning is to help him become functionally self-reliant. In that way, he will be moving together with his peers closer to achieving a learning society – a society that is better prepared and equipped to learn from the changes in the world today to face the challenges of the world of tomorrow.

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